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CAUSATION AND RESPONSIBILITY: THE COMPENSATION PRINCIPLE FROM GROTIUS TO CALABRESI

FRANCESCO PARISI* & VINCY FON**

ABSTRACT

Calabresi often lamented that insufficient consideration had been given in the legal and economic literature to the idea of distributing an accident loss among a faultless tortfeasor and an innocent victim on the basis of the relative causal contributions of the parties to the loss. This criterion of apportionment of liability, which Calabresi calls "comparative causation," is the subject of this Article. We present a brief intellectual history of the principle of comparative causation and provide a positive economic model that explains the rise and fall of this criterion of liability in historical and contemporary societies. In order to identify the structural features of this standard, we consider how a rule of comparative causation would perform in the absence of other liability rules when applied as a general and sole basis of liability. The positive economic model of comparative causation brings to light some interesting features of the rule, but also unveils the limits of such criterion of liability with respect to the induced activity and care levels. The Article then extends the economic model to consider the workings of the comparative causation rule in conjunction with negligence rules. The combined application of the comparative causation and negligence rules induces the parties to minimize their expected liability by moderating their activity level: a combination of incentives that no known liability rule provides.

In an article published in 1965 in the *Harvard Law Review*, Calabresi notes that, as the current tort system apportions liability based on fault, it only deters those accidents that are caused through fault and ignores the value of deterring accidents that are faultless.[1] Calabresi suggests this could be cured by adopting a system of nonfault liability that assesses the costs of accidents in activities according to the involvement in the activity, irrespective of legal notions of fault.[2] Calabresi further suggests that in part this may be addressed by dividing the costs of an accident pro rata among the sub-activities in-

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1. Guido Calabresi, *The Decision for Accidents: An Approach to Nonfault Allocation of Costs*, 78 HARV. L. REV. 713, 719-20 (1965).

2. *Id.* at 719.

volved.[3] For example, if a walker, a bicyclist, and an automobile are all involved in an accident, the costs would be divided among these three sub-activities.[4] If this occurred in case after case, the cumulative effect would be to assign greater liability to those activities that are involved in more accidents (both numerically and in terms of expense).[5]

In *The Costs of Accidents*,[6] Calabresi returns to this issue, and he assesses the field of theory that endeavors to explain the modern trend away from fault-based apportionment of liability. Because one of the primary concerns of tort law is compensating the faultless victim, it may be seen as unjust to place liability completely on one party.[7] On a theoretical level, Calabresi states that "[t]he justification found most often among legal writers today for allocation of accident losses on a nonfault basis is that accident losses will be least burdensome if they are spread broadly among people and over time."[8]

Since *The Costs of Accidents*, law and economics scholars have provided convincing rationales as to when it may be efficient to let some losses rest where they fall (i.e., leaving the victim's loss uncompensated), and when instead it may be efficient to shift the loss to the tortfeasor. Under most liability rules, if neither party is at fault, the loss is either entirely borne by the victim (as in a negligence-based system) or is shifted entirely on the tortfeasor (as in a strict liability system). Absent fault on either party, there are no legal rules designed to apportion the loss between victim and tortfeasor.[9] Yet, as

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3. *Id.* at 740.

4. *Id.*

5. *Id.*

6. GUIDO CALABRESI, THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS (1970).

7. *Id.* at 5. Calabresi assesses five different reforms for the apportionment of liability that strive to address this issue: (1) a form of general societal insurance that compensates victims of accidents from general tax revenues; (2) first-party motorist insurance plans that require each owner to protect himself from accidents; (3) increased emphasis on extensive government safety regulations to prevent accidents; (4) a guaranteed benefits program that favors a guaranteed payment in exchange for waiver of common-law remedies; and (5) judicial expansion of products liability law. *Id.* at 5-14.

8. *Id.* at 39.

9. The sharing of the loss is generally pursued through rules of comparative negligence whenever both parties have failed to meet their minimum standard of care in their conduct. *Cf.* Gary T. Schwartz, *Contributory and Comparative Negligence: A Reappraisal*, 87 YALE L.J. 697, 726-27 (1978) (describing comparative negligence as a liability-dividing rule that eliminates the fairness and accident prevention problems inherent in the negligence rule and contributory negligence). *See generally* Robert D. Cooter & Thomas S. Ulen, *An Economic Case for Comparative Negligence*, 61 N.Y.U. L. REV. 1067 (1986); Daniel L. Rubinfeld, *The Efficiency of Comparative Negligence*, 16 J. LEGAL STUD. 375 (1987).

Calabresi[10] and Calabresi and Cooper[11] lament, no consideration has been given to the idea of distributing the loss between faultless parties on the basis of their respective contribution to the loss.

In a 1996 article, Calabresi and Cooper explore the issue of loss spreading among faultless parties in greater detail.[12] They chart an evolutionary path of comparative causation issues in tort law. They hypothesize that over the last thirty years the tort system began valuing notions of comparative negligence over contributory negligence, and while society is still far from embracing comparative causation, modern trends favor this idea. Summarizing these ideas, the authors write:

> The integration of non-fault notions into the splitting analysis under comparative negligence could ultimately lead us to compare non-fault with non-fault—comparative non-negligence, if you will. That is, there may be situations in which neither side was negligent, but each side could have done something to avoid the loss and did not. In these situations, too, we might want to split the loss. But we are, in fact, nowhere near ready to do that yet, across the board. And so where neither side is at fault, we still remain subject to all-or-nothing rules. In the absence of defendant fault, innocent plaintiffs bear the whole loss in most areas, while in so-called non-fault liability areas, defendants bear the entire loss where neither party is at fault.[13]

The authors suggest that New York's adoption of comparative negligence and abolishment of the doctrine of assumption of risk is one manner in which the trend toward comparative causation could be illustrated.[14] In an area that had typically been subjected to strict liability tempered by the assumption of risk (such as hazardous substances or products liability), there may be some desire to split the damages among both faultless parties instead of having a legal rule in place that puts the entire burden of loss on either the plaintiff or defendant.[15] The expansion of tort law into comparative causation

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10. In his address at the Sixth Annual Meeting of the American Law & Economics Association, Calabresi suggested comparative causation as a fertile field for research. Instead of determining who is at fault, the courts would assign liability to each party to the degree that each party was the cause of the accident. Guido Calabresi, Address at the 6th Annual Meeting of the American Law & Economics Association, Chicago (May 10-11, 1996).

11. Guido Calabresi & Jeffrey O. Cooper, *New Directions in Tort Law*, 30 VAL. U. L. REV. 859 (1996).

12. *Id.*

13. *Id.* at 877.

14. *Id.* at 877-78.

15. *Id.*

might take place by extending nonfault notions such as products liability and hazardous activities to cover a larger realm of incidents.[16] This expansion could be justified by arguing that it will not overly burden defendants because, where strict liability rules shield plaintiffs from carrying any burden of loss, comparative causation will require plaintiffs to bear some of the burden in these cases.[17]

Calabresi and Cooper then explore the consequences that adopting a rule of comparative causation might have for various areas of tort law. For example, will there be a willingness to expand the idea of proximate cause because the defendant's behavior, while remote in time, still helped cause the accident?[18] Will there be a movement to abandon the rule that recovery of emotional damages is an all-or-nothing affair, depending on whether impact occurred?[19] How will the idea of joint and several liability be altered? For example, under current law, if Defendant *A* is ten percent negligent and Defendant *B* is ninety percent negligent, but is judgment-proof, Defendant *A* could be forced to pay the entire judgment.[20] However, if the issue is responsibility and not negligence, is it still fair to obligate Defendant *A* for the entire bill?[21] If statistical causation is being used in a situation where previously a plaintiff would be denied recovery if a defendant was not more than fifty percent negligent, is there any rationale for denying partial recovery when a defendant *caused* forty percent of the risk?[22]

In this Article, we hope to add some insight on the functioning of comparative causation. In Part I, we present a brief intellectual history of the comparative causation criterion, considering historical and modern illustrations of the principle of compensation and its practical corollary, the principle of comparative causation and causal apportionment of the loss. In Part II, we look at the recent applications of comparative causation in U.S. and foreign case law. In Part III, we build on the results reached in the law and economics literature with respect to the idea of sharing the loss among innocent parties. The economic models of comparative causation bring to light some interesting features of the rule. Specifically, we consider the application of the comparative causation rule in conjunction with existing liability

16. *Id.* at 878.
17. *Id.*
18. *Id.*
19. *Id.* at 879.
20. *Id.*
21. *Id.* at 880-81.
22. *Id.* at 882-83.

rules based on negligence. The economic model of this rule allows us to evaluate the advantages of the comparative causation principle, but also to unveil the limits of this rule with respect to the incentives to adopting efficient care and activity levels, for both tortfeasors and victims. In Part IV, we consider different approaches for the implementation of comparative causation. Part V concludes with some considerations on the dilemma of casual apportionment of damages.

I. THE RISE AND FALL OF COMPARATIVE CAUSATION: AN INTELLECTUAL HISTORY[23]

The problem of apportioning losses between faultless parties is a well-debated issue in legal theory. Fourteenth-century legal scholars and fifteenth-century legal humanists were the first to consider explicitly the problem of apportioning losses among blameless parties.[24] In later times, seventeenth-century natural law scholars such as Hugo Grotius[25] and Samuel Pufendorf[26] critically revisited the Romanistic principle of fault—according to which a tortfeasor is responsible for the losses that he occasioned only if he is at fault[27]—and they formulated an alternative paradigm of liability known as the principle of compensation. These scholars challenged the underlying assumptions of the fault principle by asking why a victim should bear the losses occasioned by another, even when the victim is not at fault. The tension between the fault principle and the compensation principle became apparent in the jurisprudential writings of Grotius, who considered the practical implications of those alternative criteria of liability in actual cases.

A. Grotius's Principle of Compensation

Grotius's work is suffused by an awareness that the faultiness of an act must be considered independently from the consequences of

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23. Part I draws from Francesco Parisi & Vincy Fon, *Comparative Causation*, 6 AM. L. & ECON. REV. 345, 347-49 (2004), and FRANCESCO PARISI, LIABILITY FOR NEGLIGENCE AND JUDICIAL DISCRETION 147-48 (2d ed. 1992).

24. For a broader historical analysis of the evolution of these criteria of liability in medieval Europe, see PARISI, *supra* note 23, at 25-136.

25. HUGO GROTIUS, THE LAW OF WAR AND PEACE (Francis W. Kelsey trans., Bobbs-Merrill Co., Inc. 1925) (1625).

26. 2 SAMUEL PUFENDORF, DE JURE NATURAE ET GENTIUM: LIBRI OCTO (C.H. Oldfather & W.A. Oldfather trans., James Brown Scott ed., Oceana Publ'ns Inc. and Wildy & Sons Ltd. 1964) (1688).

27. *See* GROTIUS, *supra* note 25, at 430 (defining "fault" as an action "whether of commission or of omission, which is in conflict with what men ought to do, either from their common interest or by reason of a special quality").

the act.[28] Grotius proposes moving away from the fault principle by adopting a compensation principle, suggesting that absent fault, there is no reason to let the loss fall on the innocent victim, just like there is no obvious reason to shift it to the tortfeasor.[29]

In many ways, Grotius's work exemplifies the seventeenth-century scholars' uneasiness with the existing paradigms of liability, an all-or-nothing approach to the apportionment of liability. Even when damages cannot be apportioned on the basis of the relative fault of the parties (such as when both parties were negligent and the loss is spread on the basis of comparative negligence), equitable principles may require the apportionment of the loss between the parties. Among the scholars of his age, Grotius was probably the most explicit and forceful advocate of the idea of equitable apportionment of damages. He argues that apportionment of liability should take place even when neither party is negligent or if negligence cannot be assessed.[30]

Grotius provides another example where someone's ship runs afoul of another. He notes that according to the laws that were in force at the time of his writings (i.e., prior to the year 1625), many nations, including his own, divided the cost between both parties, due to the difficulty of deciding who was at fault in such a case.[31] In this manner, some of the arbitrariness of the liability system could be

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28. PARISI, *supra* note 23, at 145. Grotius separates "fault," defined *supra* note 27, from liability. *See* GROTIUS, *supra* note 25, at 430 ("From such a fault, if damage has been caused, by the law of nature an obligation arises, namely that the damage should be made good." (footnote omitted)).

29. The criterion of causal apportionment of the loss was an important, and possibly unavoidable, corollary of Grotius's equitable approach to liability. GROTIUS, *supra* note 25, at 433. A passage of *The Law of War and Peace* examined the rationale of cases in which the link between liability and faultiness was not clearly assessed. *See id.* at 434 (differentiating between an unjustified homicide, in which one unjustly takes a human life and therefore must compensate the dead man's family for what they have lost, and a situation in which the person who took a life had the right to participate in the activity that resulted in death, and thus faced no liability); *see also* PARISI, *supra* note 23, at 145-46 (noting that Grotius's separation of liability from faultiness, which initially does not change the inquiry nor the result in determining responsibility for a wrong done, has nevertheless been read as "introducing a general possibility of risk liability not based on fault").

30. GROTIUS, *supra* note 25, at 433.

31. As Grotius states:

> This also is to be noted, that it is likewise a principle of municipal law that a slave or animal, which has caused damage or loss, is to be delivered up for punishment. For by the law of nature the owner who is not in fault is not in any degree liable. Furthermore, he is not liable whose ship without fault on his part has caused damage to the ship of another. Yet by the laws of many peoples, as also by our laws, it is customary that such a loss be divided, on account of the difficulty of fixing the blame.

Id. at 437.

avoided and compensation could be determined on the basis of objective criteria of causal contribution, rather than on the basis of subjective elements of fault.[32] This criterion of causal imputability has traditionally been understood as a way to provide the victim with equitable compensation for the harm suffered.[33] At the same time, however, it can be viewed as an instrument responding to different policy concerns, as the economic analysis of the rule will suggest.

B. The Rise and Fall of Comparative Causation in European Tort Law

In large part, the historical doctrines of comparative causation discussed above did not leave much of a mark in the black-letter restatements of Western tort law. Although the natural lawyers of the seventeenth and eighteenth centuries continued to approach the issue of delictual liability in very much the same terms used by Grotius and his predecessors, the specific equitable approach to tort liability and damage assessment was not destined to be shared by later jurists, such as Domat and Pothier, and was consequently ignored in the subsequent codifications of tort principles in the civil-law tradition.[34] In spite of these incursions into its development, the rules of civil liability adopted in the nineteenth-century European codes continued to be based solely on the classical principle of fault.[35] Whoever by his own fault caused damage to another was bound to compensate the other. Lacking any fault, or evidence thereof, the loss was to lie where it fell without any room for equitable adjustment or causal apportionment of liability.[36]

II. MODERN APPLICATIONS OF THE PRINCIPLE OF COMPARATIVE CAUSATION

The historical illustrations of causal apportionment of loss that we have considered are not the only incarnations of the comparative

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32. PARISI, *supra* note 23, at 147.

33. *Id.*

34. *Id.* at 147-50. For a discussion of Domat and Pothier's contribution to the first codifications of tort law, see *id.* at 151-53.

35. *Id.* at 149, 154; *e.g.*, C. CIV. art. 1382 (1804) (French Civil Code of 1804); § 823(1) BGB (1900) (German Civil Code, the Bürgerliches Gesetzbuch, of 1900). For extracts of these codes, see F.H. LAWSON, NEGLIGENCE IN THE CIVIL LAW: INTRODUCTION AND SELECT TEXTS 186, 203-04 (1950).

36. Due to the mixed intellectual heritage of the notion of fault, it is not surprising that modern European codes chose not to include any definition of fault in the black-letter law, and consciously or unconsciously left much room for equitable decisionmaking. *See, e.g.*, THE GERMAN CIVIL CODE, at xvi (Ian S. Forrester et al. trans., 1975) (characterizing section 823(1) of the German Civil Code as an abstract statement of principle to be interpreted equitably by a court).

causation rule. The modern applications of the rule are, however, only partially germane to their historical antecedents. While the historical articulations of the principle of comparative causation were grounded on the ethical need to apportion the harm between an innocent tortfeasor and an innocent victim, the recent revival of the concept of comparative causation is driven by additional, more pragmatic, necessities. In recent years, the rule of comparative causation has emerged in the midst of established liability systems (based on fault or strict liability) and has been applied to situations where it was difficult to evaluate the parties' fault or where it was otherwise desirable to apportion the loss between tortfeasor and victim on the basis of criteria of causal imputability.

A. The Recent Revival of Comparative Causation in American Tort Law

In American tort law, the doctrine of comparative causation has been revived for the assessment of the liability of the parties in situations where the traditional criterion of fault-based liability fails to offer a viable standard of adjudication. The occasional applications of the comparative causation rule have been met with mixed support by commentators. On the one hand, courts and practitioners have noted that "[i]t is time to move away from subjective considerations of fault assessment which invariably change with the fact finder," and instead adopt the "reliable concept of comparative causation."[37] Others have stressed the residual function of comparative causation; it should be used only when other traditional criteria of liability are unavailable.[38] According to this view:

> Where we can base apportionment of damages on judgments of comparative negligence without reference to causation, there is no need to substitute the complicated task of comparative causation. Where, however, the standard of liability denies us commensurable faults to compare, as in strict liability cases, we ought to apportion [the loss] on the basis of causal weight.[39]

The judicial applications of comparative causation clearly reflect these ideological positions.

The application of the criterion of comparative causation is seen most often in three groups of cases involving: (1) strict liability versus

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37. William D. Grimley, *Comparative Fault & Solidary Delictual Obligations: On Further Consideration*, 60 LA. L. REV. 513, 534 (2000).

38. *E.g.*, Robert N. Strassfeld, *Causal Comparisons*, 60 FORDHAM L. REV. 913, 949 (1992).

39. *Id.* (footnotes omitted).

negligent conduct, (2) products liability versus misuse, and (3) non-negligent conduct versus equity. These situations are examined in turn and a sample of recent case law invoking the criterion of comparative causation follows.

1. Strict Liability and Negligent Conduct.—In the first group of cases, courts are turning to the historical "causal" bases of fault defenses in strict liability. Vernon Palmer suggests that the "contrast between strict liability and the modern negligence notion relates not to fault, but to judicial balancing—to the flexible calculus of negligence versus the inelastic standard of strict liability."[40] Palmer further asserts that "[w]e must recognize the possibility that strict liability is a sliding scale and not an exact point of reference."[41] Indeed, Palmer argues that rather than relying on comparative fault, judges have increasingly used comparative causation in order to apportion losses in strict liability cases.[42] Along similar lines, Aaron Gershonowitz notes that this is logical because "[t]he primary reason that the plaintiff's conduct should be considered in products liability litigation is the unfairness of requiring defendants, or society through the risk-spreading mechanism, to pay for injuries caused by the plaintiff's wrongdoing."[43]

In *Howard v. Allstate Insurance Co.*,[44] a well-known Louisiana case, the court applied comparative causation, in lieu of comparative fault, to an issue of strict liability.[45] In this case, the defendants, whose dog bit a child, were liable irrespective of whether or not they were negligent.[46] The court nevertheless held that under the comparative causation principle, the causal effect of the plaintiff's conduct should be compared with the defendants' non-negligent causal contribution to the loss.[47] The court therefore considered the nature of the parties' conduct in conjunction with the causal relation between the conduct and the resulting damages.[48]

This reasoning is consistent with a current attempt on the part of judges to find ways to apportion the loss between the parties, and to merge the "victim's fault" defenses into new comparative doctrines.

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40. Vernon Palmer, *A General Theory of the Inner Structure of Strict Liability: Common Law, Civil Law, and Comparative Law*, 62 TUL. L. REV. 1303, 1354 (1988).

41. *Id.* at 1306.

42. *Id.* at 1333.

43. Aaron Gershonowitz, *Comparative Causation as an Alternative to, Not a Part of, Comparative Fault in Strict Products Liability*, 30 ST. LOUIS U. L.J. 483, 485 (1986).

44. 520 So. 2d 715 (La. 1988).

45. *Id.* at 719.

46. *Id.* at 717.

47. *Id.* at 719.

48. *Id.*

Some scholars have been very supportive of these new judicial trends. Grimley notes that *Howard* in particular illustrates the shortcomings of comparative fault and why a comparative causation approach should be taken: because there was no actual conduct on the part of the dog's owner for the court to review, there was no basis for comparing fault.[49] These difficulties were aggravated by the fact that the victim was a child, whose fault could not easily be assessed.[50] Where there is no actual conduct on the part of the defendant, or when the plaintiff's fault cannot be assessed, the application of traditional comparative negligence rules is impossible, and comparative causation emerges as a viable candidate to apportion liability between the parties.

2. *Products Liability and Misuse.*—A second group of applications of the comparative causation criterion can be found in the area of products liability. In strict products liability cases, courts have been quite active in mitigating the manufacturer's liability when the accident was occasioned (or rendered more likely) by the consumer's misuse of the product.[51] In these cases, when no comparative negligence criterion can be invoked, courts have increasingly turned to the doctrine of comparative causation as a way to allocate losses between producers and consumers. For instance, in a Third Circuit case, the court distinguished comparative causation from comparative fault, and concluded that the court's task in products liability cases is to compare the causal conduct of each party.[52] The court went on to note that, if a defendant is found strictly liable for harm resulting from a defective

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49. Grimley, *supra* note 37, at 520.

50. *See Howard*, 520 So. 2d at 719 (holding that the jury was clearly wrong to attribute 50% of the fault to an 11-year-old child with the mental ability of an 8- or 9-year-old).

51. *See* Pan-Alaska Fisheries, Inc. v. Marine Constr. & Design Co., 565 F.2d 1129, 1139 (9th Cir. 1977) (holding that a defendant is strictly liable in an action in which harm is caused by a defective product but that damages in such cases should be reduced proportionally by the plaintiff's own contribution to the injury); Edwards v. Sears, Roebuck & Co., 512 F.2d 276, 290 (5th Cir. 1975) (holding that the trial court was correct in reducing damages according to the extent to which the decedent was contributorily negligent in a products liability action); Daly v. Gen. Motors Corp., 575 P.2d 1162, 1168 (Cal. 1978) (noting that, should California adopt comparative principles, plaintiffs' recovery would be reduced to the extent that the lack of reasonable care in some way contributed to his injury); Powers v. Hunt-Wesson Foods, Inc., 219 N.W.2d 393, 395 (Wis. 1974) (noting that the defense of comparative negligence is available to apportion fault in products liability cases). *Pan-Alaska*, *Daly*, and *Powers* are discussed further in Mary J. Davis, *Individual and Institutional Responsibility: A Vision for Comparative Fault in Products Liability*, 39 VILL. L. REV. 281, 309 n.94 (1994).

52. Murray v. Fairbanks Morse, 610 F.2d 149, 158 (3d Cir. 1979) (cited and discussed in Davis, *supra* note 51).

product, the jury should be instructed to reduce the award proportionately by the plaintiff's causal contribution to his own injury.[53]

A similar approach was adopted in a Texas products liability case, where the court noted that if a plaintiff's misuse of a defective product was unforeseeable to the defendant but the harm is reasonably foreseeable to the plaintiff, a verdict for the plaintiff should be reduced proportionately to the extent that the unforeseen use of the product contributed to the actual loss.[54] In this case, the traditional all-or-nothing strict liability approach would result in a complete bar to plaintiff's recovery.[55] Applying comparative causation, however, the damages were apportioned between the two parties.[56] A producer will have greater knowledge regarding the product's defects, and accordingly, will know the ways in which the product might pose a threat, about which the user is unaware or unable to become aware.[57] Once a consumer becomes aware of a defect, however, the producer and consumer are on equal footing because they are equally knowledgeable, and in this case, it was proper to compare their conduct accordingly.[58]

3. Non-Negligent Conduct and Equitable Apportionment of the Loss.— A third group of applications of the comparative causation criterion is more germane to the historical applications of the rule, examined in Part I. In this group of cases, courts have struggled to apportion the loss among faultless parties on the basis of the causal contribution of the parties' conduct to the actual loss.

In such contexts, courts have applied the concept of comparative causation as an instrument for achieving the most equitable result, when no other criterion of liability seemed to allow an apportionment of the loss between the parties. In *Gibson v. State ex rel. Department of Transportation and Development*,[59] for example, the plaintiff was crossing a bridge when his vehicle slid off of the highway onto an embankment and impacted a bridge cap.[60] The impact flipped the car and

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53. *Id.* at 162.

54. Gen. Motors Corp. v. Hopkins, 548 S.W.2d 344, 352 (Tex. 1977).

55. *See id.* (concluding that "comparison and division of the causes [should not] be confused with . . . modified comparative negligence which bars all recovery . . . if [the plaintiff's] negligence is greater than [that of the defendant]").

56. *Id.*

57. *See id.* at 351. For a discussion of *Hopkins*, see Aaron D. Twerski, *The Many Faces of Misuse: An Inquiry into the Emerging Doctrine of Comparative Causation*, 29 MERCER L. REV. 403, 432-34 (1978).

58. For further analysis, see Davis, *supra* note 51, at 349-50.

59. 674 So. 2d 996 (La. Ct. App. 1996).

60. *Id.* at 999.

set it on fire, causing the plaintiff's death.[61] The court focused on comparative causation, since it was likely that the vehicle would have veered off the road regardless of whether the bridge cap had been there.[62] The presence of the bridge cap, however, increased the impact and caused the fire, killing the driver.[63] Therefore, the "court came very close to assessing the deceased and the [defendant] with precisely the harm that each *caused*."[64]

B. Causal Apportionment of Damages in Foreign Jurisdictions

Similar developments of the paradigm of comparative causation can be found in some foreign civil-law jurisdictions. Such developments are very interesting in light of the greater constraints that civil-law courts face when introducing new legal principles in established areas of law, such as torts.

France and Germany adopted some causal apportionment standards in the 1800s, and current French jurisprudence continues to reflect the growing causal basis for apportioning liability.[65] In custodial liability cases, for example, the French *Cour de cassation* applies all liability defenses on a causal basis, and does not recognize the "fault" of the victim in most circumstances.[66]

The principle of comparative causation has reached beyond Europe. Japanese courts are committed to allocating equitably all damages in tort and contract cases.[67] Japanese courts exercise substantial discretion in considering the individual circumstances of a particular case to determine the liability of the defendant.[68] The comparative negligence doctrine and foreseeability standard is used by Japanese courts in contract law when parties determine damages they owe each other in cases of breach (despite the clear determination by the draft-

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61. *Id.*

62. *Id.* at 1003.

63. *See id.* at 1005 (characterizing the accident as initially minor but made fatal by the location of the bridge cap).

64. Grimley, *supra* note 37, at 524-25. The same results could have been reached in this case by thinking of the facts as constituting, in essence, two different accidents. *Id.* at 525.

65. Parisi & Fon, *supra* note 23, at 349; *see also* Palmer, *supra* note 40, at 1327, 1333; Robert A. Prentice, *Can the Contributory Negligence Defense Contribute to a Defusing of the Accountants' Liability Crisis?*, 13 WIS. INT'L L.J. 359, 366 n.4 (1998).

66. Palmer, *supra* note 40, at 1333. Palmer further notes that "[t]his narrowed causal basis illustrates that defenses provide a separate source of strictness in the field of strict liability." *Id.* at 1333-34.

67. Li Yu, Book Review, 6 COLUM. J. EUR. LAW 147, 148 (2000) (reviewing MODERN TRENDS IN TORT LAW: DUTCH AND JAPANESE LAW COMPARED (Ewoud Hondius ed., 1999)).

68. Y. Nomi, *Proportionality in Tort and Contract Law, in* MODERN TRENDS IN TORT LAW: DUTCH AND JAPANESE LAW COMPARED, *supra* note 67, at 209, 215; Yu, *supra* note 67, at 148.

ers of the Japanese Civil Code that stipulated damages may not be reduced by comparative causation).[69] In torts, whenever traditional criteria of liability lead to all-or-nothing outcomes, the demand for equitable apportionment of damages has allowed Japanese courts to apportion damages using a causal basis.[70] Further, this judicial discretion has provided a pragmatically viable solution to mass toxic tort cases. For instance, in a case where there was an unclear causal connection between the defendant's poisoning and resulting illness, a Japanese court resolved the dispute over causation by linking the extent of compensation to a plaintiff's position on a grid representing the likelihood of industrial pollution being the cause for her illness.[71] Compensation was adjusted accordingly.[72]

Legal developments in Europe have also focused on this criterion of liability in the field of environmental law.[73] The *Hoge Raad*, the Supreme Court of the Netherlands, applied negligence and comparative causation principles to a series of cases involving environmental liability in the 1980s.[74] European states are increasingly likely to apply public-law solutions and to compare causation, rather than simply enable individuals to recover through traditional liability doctrines that would force an all-or-nothing solution with no intermediate levels of recovery.[75] Both the law of the European Union and public international law follow a similar approach. For example, in a case before the European Court of Justice, in which the plaintiff sued the Commission of the European Communities for his wrongful arrest, the court held that "[i]n assessing the conduct of the Commission on the one hand and that of the applicant on the other, the Court considers it equitable to apportion responsibility for that damage equally between the two parties."[76] Rules of public international law dealing with the international liability of sovereign states present features that closely resemble those of the seventeenth-century maritime law discussed by Grotius. For example, in international law, the liability of nations is

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69. Nomi, *supra* note 68, at 218-19.

70. Yu, *supra* note 67, at 148; *see also* Nomi, *supra* note 68, at 210 (noting that Japanese courts apply comparative negligence very widely in order to achieve equity).

71. Nomi, *supra* note 68, at 213-14; Yu, *supra* note 67, at 148.

72. Nomi, *supra* note 68, at 214; *see also* Yu, *supra* note 67, at 148 (stating that the demand for equity has enabled Japanese courts to reach efficient economic resolutions of massive toxic tort cases).

73. Parisi & Fon, *supra* note 23, at 349.

74. *Id.*; Yu, *supra* note 67, at 149.

75. Yu, *supra* note 67, at 149-50.

76. Case 145/83, Stanley George Adams v. Commission, 1985 E.C.R. 3651, 45 C.M.L.R. 506, 550 (1986).

governed by a rule of equitable apportionment of the loss between the parties.[77]

The use of such an approach in cases concerning the responsibility of states is justified by the pragmatic need to provide "satisfaction" to the victim state, making it appropriate to "prescribe the payment of compensation for the consequences of legal or 'excusable' acts."[78] Diplomatic expediency often requires an apportionment of the loss between states in order to maintain good standards in international relations and to uphold effectively the principle of reparation.[79]

In spite of the different pragmatic reasons for adopting the comparative causation rule, the historical and comparative illustrations considered above share a common methodological foundation, based on the causal apportionment of the loss.

III. APPLYING COMPARATIVE CAUSATION UNDER NEGLIGENCE

Comparative causation historically emerges in the midst of legal systems based on negligence, in response to the rise of the compensation *principle*, which suggests that, absent fault, there is no reason to let the loss fall on the innocent victim, just as there is no obvious reason to shift it onto the tortfeasor.[80] The rule first emerged in legal systems of the civil-law tradition that already had embraced the criterion of comparative negligence for apportioning liability among negligent parties.[81] In those early applications, the comparative causation rule was invoked in bilateral precaution situations, coexisting with a general regime of negligence with a defense of comparative negligence. The original formulations of the principle of compensation advocated the criterion of causal apportionment of the loss only when neither the tortfeasor nor the victim was found negligent.[82] In those original formulations, the principle of comparative causation thus only operated as a residual basis of liability in order to avoid the all-or-nothing

77. In addition to the applications of the comparative causation principle in maritime law, Grotius's principle was taken seriously by some legal systems, which considered his work as highly authoritative. *See* IAN BROWNLIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 434 (4th ed., 1990) (stating that the concepts of reparation and restitution have long been a part of legal concepts in Europe and classical writers such as Grotius often referred to these concepts).

78. *Id.* at 433.

79. For a general discussion of the different conceptions of satisfaction, reparation, and compensation in international law, see *id.* at 457-65.

80. Parisi & Fon, *supra* note 23, at 347-48.

81. *Id.* at 359 n.22. In fact, the civil-law tradition utilized a comparative negligence rule much earlier than the common law. *Id.*

82. *Id.* at 359.

allocation of liability generated by the traditional rules in the case of faultless parties.[83]

The economic model of comparative causation that we developed in an earlier article sheds light on the workings of comparative causation rules in historical legal systems.[84] The mixed fortunes and the changing contours of the comparative causation rule are also best understood in light of such an economic model.[85] In this Part we will consider the mechanics of the criterion of comparative causation applied in combination with negligence and comparative negligence rules.

A. *Missing Thresholds and the Troublesome Design of Loss-Sharing Rules*

In order for a party to choose the optimal activity level, he must bear the full accident costs in equilibrium. From a practical standpoint, however, there are no existing legal rules based on the activity level of the parties that threaten full liability for both parties in equilibrium.[86] The problem can be understood by comparing the bilateral precaution rules based on level of care (e.g., comparative negligence) to other bilateral rules based on activity level (e.g., comparative causation).[87] In care-based regimes, there is a critical (or threshold) value of care (generally defined as the socially efficient level of care), which separates negligence from diligence.[88] No such critical value can be identified in the case of activity level.

The reason why it is not feasible to specify a socially optimal activity level (one that could operate as a judicially applied threshold for the assessment of liability) is quite straightforward. Efficient activity levels can only be determined with information regarding the subjec-

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83. *Id.* When neither party is at fault, the criterion of comparative negligence does not allow loss spreading between the parties. *Id.* at 348. In such a scenario, under a strict liability rule the entire loss would be borne by the tortfeasor, while under a negligence rule, the loss would be borne entirely by the victim. *Id.* at 365.

84. *See id.* at 350-65 (discussing a model to highlight the essence of comparative causation).

85. *Id.* at 364.

86. *See id.* at 359 (noting that no threshold of "optimal activity level" is generally invoked by legal rules as a liability mechanism). As it has been pointed out in the literature, if the due standard of efficient behavior for injurers and victims could also be formulated with respect to optimal activity levels, then liability rules could induce optimal care and activity levels for both parties. *Id.* at 359 n.24 (citing THOMAS J. MICELI, ECONOMICS OF THE LAW: TORTS, CONTRACTS, PROPERTY, LITIGATION 29 (1997)). The historical emergence of rules of comparative causation partially reflects the difficulties of implementing such an ideal rule. *Id.*

87. *See id.* at 359 (introducing the difficulty inherent in combining comparative causation with fault-based liability, i.e., comparative causation under negligence).

88. *Id.*

tive value of the activity for the parties.[89] Unlike optimal levels of care, which depend solely on the objective cost of precaution and the expected gravity of the harm, optimal activity levels rely on values that are unascertainable by a third-party decisionmaker, since they include the subjective surplus of the individual that carries out the risk-creating (or risk-bearing) activity.[90] In the absence of an objective threshold for activity level, there is no way to identify a critical value of activity level beyond which individuals could be deemed to have acted inappropriately.[91]

The comparative causation criterion avoids the need to identify such a critical value, since it creates no point of discontinuity in the liability curve faced by the parties.[92] Furthermore, it induces both parties to internalize positive shares of the social cost of activity and social benefits of care in equilibrium.[93] In equilibrium, parties are induced to adopt efficient activity levels, thereby avoiding the need for a third-party evaluation of unobservable costs and benefits.[94]

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89. *Id.* at 360.

90. *Id.* This difficulty is also evident in the mathematical formulation of the activity level problem. Unlike level of care problems, generally modeled as minimization problems, the analysis of care-plus-activity situations is generally reformulated as a maximization problem. This is due to the need to take into account the private (and social) value of the activity level. If the problem were formulated as a mere cost minimization problem, the optimal activity level would paradoxically always be zero. Corner solutions of this sort would obviously be generally undesirable, given the private and social value of risk-creating activities. *Id.* at 360 n.26.

91. Without specifying a threshold activity level, it will be impossible to give both parties incentives to choose efficient activity levels in equilibrium. *Id.* at 360. As Thomas Miceli suggests, "[t]he usual reason given for making negligence conditional only on care is that the task of calculating optimal activity levels is prohibitively costly for courts to undertake." MICELI, *supra* note 86, at 28 (citing WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF TORT LAW 66-67 (1987)). Landes & Posner further suggest, however, that as a matter of practice, courts take into account activity levels in their assessment of negligence in the case at bar, whenever it is feasible to do so. LANDES & POSNER, *supra*, at 70-71; *see also* Stephen G. Gilles, *Rule-Based Negligence and the Regulation of Activity Levels*, 21 J. LEGAL STUD. 319, 327-37 (1992).

92. In this respect, the comparative causation rule has been analogized to a "comparative strict liability" rule. Parisi & Fon, *supra* note 23, at 350 n.7; *see also* Francesco Parisi & Giampaolo Frezza, *La Responsabilitá Stocastica*, 63 RESPONSABILITÁ CIVILE E PREVIDENZA 824 (1998).

93. *Cf.* MICELI, *supra* note 86, at 19, 28-29 (noting that under a regime where damages are paid by either one party or another, only one party can be induced to choose the optimal activity while both will choose optimal care).

94. Although the simple formulation of the comparative causation rule induces less than optimal incentives on all margins (i.e., both the care level and activity level for each of the two parties: x, y, z, and u) it nevertheless already constitutes an improvement with respect to all known liability rules for at least one of the four variables mentioned above. *Cf. id.*

B. The Comparative Causation Regime Versus Other Regimes

With the help of an example, we will discuss the strength of the comparative causation criterion.[95] This criterion will be compared to two important criteria discussed in the literature: strict liability with contributory negligence and negligence with contributory negligence. These two criteria will be the benchmark against which we discuss the comparative causation criterion.

Our example starts with Table 1. We consider a framework of comparative causation where loss sharing occurs only when there is no unilateral negligence (i.e., when neither party is at fault or when both parties are at fault). For the example to be tractable, we assume that both the injurer (*I*) and the victim (*V*) adopt the optimal amount of care and only concentrate on their choices of activity levels.[96] Columns 1 and 2 (C1 and C2) indicate that either party can choose high, moderate, or low levels of activity. C3 shows the injurer's benefit (B_I) for adopting different levels of activity. In particular, the injurer's net benefit increases from 11 to 13 to 14 when the activity level increases from low to moderate to high. Note that the marginal benefit of increasing activity level decreases from 2 to 1. Likewise, the benefits of the victim (B_V) in adopting different levels of activity are given in C4, where marginal benefit decreases with increasing activity level. C5 provides the total accident loss (L).[97] C6 shows the social welfare (W), where social welfare is the sum of the benefits of the injurer and the victim minus the accident loss (C6 = C3 + C4 − C5).

From C6, observe that social welfare is maximized at Row 8 (R8 in Table 1). That is, when the activity levels for the injurer and the victim are a_I = low and a_V = moderate, social welfare is maximized at W = 21.

Now consider what happens under strict liability with contributory negligence. The injurer can avoid liability if the victim is negligent. If the victim is not negligent, the injurer is fully liable. It is our assumption that the victim adopts the optimal amount of care. Since

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95. The criterion discussed here is the criterion of comparative causation under negligence discussed in Parisi & Fon, *supra* note 23, at 358-65.

96. Loss sharing in case of bilateral negligence would be similar to the allocation of a loss under comparative negligence. The qualitative results would not differ from the traditional analysis.

97. This example is generated by using the following values. When the injurer's activity levels (a_I) are high, moderate, or low, the corresponding imputed numerical values are 4, 3, and 2, respectively. Similarly, when the victim's activity levels (a_V) are high, moderate, or low, the corresponding imputed numerical values are 3, 2, and 1.5. The total accident loss is computed as twice the product of the imputed activity values for the injurer and the victim: $L = 2(a_I)(a_V)$.

TABLE 1

	C1	C2	C3	C4	C5	C6	C7	C8
	I's Activity Level a_I	*V*'s Activity Level a_v	*I*'s Benefit B_I	*V*'s Benefit B_V	Total Accident Loss L	Social Welfare W	Strict Liability with Contributory Negligence: *I*'s Net Benefit NB_I^L	Negligence with Contributory Negligence: *V*'s Net Benefit NB_V^N
R1	High	High	14	19	24	9	−10	−5
R2	High	Moderate	14	18	16	16	−2	2
R3	High	Low	14	13	12	15	2	1
R4	Moderate	High	13	19	18	14	−5	1
R5	Moderate	Moderate	13	18	12	19	1	6
R6	Moderate	Low	13	13	9	17	4	4
R7	Low	High	11	19	12	18	−1	7
R8	Low	Moderate	11	18	8	21	3	10
R9	Low	Low	11	13	6	18	5	7

the victim does not have to bear the loss of the accident, he only considers the benefit of his activities (C4) and chooses a high level of activity: a_V^L = high. The injurer knows that he is liable for the accident; he considers the net benefit incurred under the regime of strict liability with contributory negligence. These net benefits are given by the direct benefits derived from his activities less the accident loss, and are presented in C7 (C7 = C3 − C5). Whatever activity level the victim chooses, the injurer finds that his net benefit is generally highest by adopting a low level of activity: a_I^L = low. In particular, given that the victim chooses the high level of activity, the injurer adopts a low level of activity. Thus, under the regime of strict liability with contributory negligence, the activity levels are a_I^L = low and a_V^L = high (R7). The social welfare is W^L = 18 (R7, C6), which is less than optimal. Further, in this case, the net benefit to the injurer is -1 and the benefit to the victim is 19.

Next consider what happens under negligence with contributory negligence. The injurer can avoid liability if the injurer is not negligent or if the victim is contributorily negligent. Our assumption is that both the injurer and the victim adopt the optimal amount of care. As the injurer is not negligent, the victim is liable for the accident loss. Since the injurer does not have to bear the loss of the accident, he only considers the benefit of his activities (C3) and chooses a high level of activity: a_I^L = high. The victim knows that he is liable for the accident, so he takes the accident loss into account and considers the net benefit incurred under the regime of negligence with contributory negligence. These net benefits are given by his benefit derived from his activities minus the accident loss and are presented in C8 (C8

= C4 - C5). Whatever activity level the injurer chooses, the victim finds that his net benefit is highest by adopting a moderate level of activity: a_V^L = moderate. In particular, given that the injurer chooses the high level of activity, the victim adopts a moderate level of activity. Thus, under the regime of negligence with contributory negligence, the activity levels are a_I^L = high and a_V^L = moderate (R2). The social welfare is W^N = 16 (R2, C6), from which a benefit of 14 is enjoyed by the injurer and a net benefit of 2 is enjoyed by the victim.

Note that under the regime of strict liability with contributory negligence and the regime of negligence with contributory negligence, there are losses in social welfare.[98] We now turn our attention to the regime of comparative causation. Under our criterion of comparative causation, the two parties share the accident loss when both parties are negligent or when neither party is negligent. Thus, the all-or-nothing allocations of liability remain applicable when only one party is negligent. To continue with our numerical example, we assume that the share of the damages paid by each party depends on the activity levels of both parties. In particular, given the other party's activity level, one party has to pay a higher share of the accident loss if his activity level is higher. We impute a value for the activity level of each party and then compute the share of the accident cost borne by each party from these imputed activity values. The net benefits incurred for the injurer and the victim under this regime are presented in C9 and C10 in Table 2.[99] The first few columns in Table 2 (C1 through C6) are the same as those columns in Table 1. Note that for each row, the sum of the net benefit to the injurer NB_I^C and the net benefit to the victim NB_V^C is equal to the social welfare W (i.e., C9 + C10 = C6).

Consider the behavior of the injurer under this regime. Assuming that the victim chooses the high level of activity, the injurer compares his net benefits when he chooses a high level of activity (0.29 in R1, C9), when he chooses a moderate level of activity (4 in R4, C9), and when he chooses a low level of activity (6.20 in R7, C9). He de-

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98. Recall that the maximum social welfare in C6 is 21 (R8). However, under the regime of strict liability with contributory negligence, the social welfare is 18 (R7); there is a welfare loss of 3. Likewise, under the regime of negligence with contributory negligence, the social welfare is 16 (R2) and the welfare loss is 5.

99. For example, when the injurer chooses a high level of activity (a_I = 4) and the victim also adopts a high level of activity (a_V = 3), the share of the damage borne by the injurer is equal to 4/7 times the loss. The net benefit of the injurer is then equal to his benefit from engaging in the activity (C3) minus his share of the damage. In general, the net benefit for the injurer is $NB_I^C = B_I - (a_I / (a_I + a_V))*L$. Likewise, the net benefit for the victim is given by $NB_V^C = B_V - (a_V / (a_I + a_V))*L$.

TABLE 2

	C1	C2	C3	C4	C5	C6	C9	C10
	I's Activity Level a_I	*V*'s Activity Level a_V	*I*'s Benefit B_I	*V*'s Benefit B_V	Total Accident Loss L	Social Welfare W	Comparative Causation: *I*'s Net Benefit NB_I^C	Comparative Causation: *V*'s Net Benefit NB_V^C
R1	High	High	14	19	24	9	.29	8.71
R2	High	Moderate	14	18	16	16	3.33	12.67
R3	High	Low	14	13	12	15	5.27	9.73
R4	Moderate	High	13	19	18	14	4	10
R5	Moderate	Moderate	13	18	12	19	5.8	13.2
R6	Moderate	Low	13	13	9	17	7	10
R7	Low	High	11	19	12	18	6.2	11.8
R8	Low	Moderate	11	18	8	21	7	14
R9	Low	Low	11	13	6	18	7.57	10.43

cides to adopt a low level of activity since his net benefit is highest. Likewise, assuming that the victim chooses a moderate level of activity, the injurer chooses a low level of activity since his payoff is highest at 7 (the payoff in R8 is higher than the payoffs in R5 and R2). Lastly, when the victim chooses a low level of activity, the injurer still finds that choosing a low level of activity is his best strategy. Thus, the injurer chooses the low level of activity whatever the choice of the victim: a_I^C = low.

Similar consideration shows that the victim is best off choosing the moderate level of activity independent of the level of activity chosen by the injurer. Thus, a_V^C = moderate. Note that these activity levels adopted by the two parties are efficient. Given these activity levels, the social welfare is maximized at $W^C = 21$. In this case, the net benefit to the injurer is 7 and the net benefit to the victim is 14.

Table 3 concludes the comparisons among the different regimes. Our example shows that under the regime of comparative causation, social welfare can be improved when compared to the regime of strict liability with contributory negligence and the regime of negligence with contributory negligence.

TABLE 3

	I's Activity Level	*V*'s Activity Level	Social Welfare	*I*'s Net Benefit	*V*'s Net Benefit
Social Optimum	Low	Moderate	21	n/a	n/a[100]
Strict Liability with Contributory Negligence	Low	High	18	−1	19
Negligence with Contributory Negligence	High	Moderate	16	14	2
Comparative Causation	Low	Moderate	21	7	14

C. *The Efficiency of Comparative Causation*

These previous results provide us with a key for understanding the evolution of comparative causation in the legal systems we have considered.

If applied in conjunction with traditional negligence rules, causal liability induces the parties to minimize their expected liability by moderating their activity level. No other liability rule provides this incentive. Obviously, the creation of such an incentive comes at a cost, given that the application of causal liability requires the adjudication of cases even in situations where neither party is at fault. This will likely increase the administrative costs of the liability system (at least in those situations where the cases would not be brought to court absent an indicium of the parties' negligence).

In retrospect, we can therefore understand why the early applications of this rule took place in situations involving substantial losses (e.g., the cases of excusable homicide or ship collision found in the seventeenth century). Likewise, we can understand why the rule has continued to thrive in areas of the law where the benefits that could be obtained from the improved activity level of the parties could justify the increase in adjudication costs (e.g., environmental cases), or, alternatively, where the moderated form of liability produced by the rule was necessitated by concerns of equity or political necessity (e.g., international responsibility of sovereign states).

The above considerations further reveal a qualitative difference between the results of comparative causation and those generated by the other conventional rules. Unlike all the other bilateral precaution rules that concentrate on the incentives to optimize activity levels for only one party, comparative causation rules spread the threat of residual liability, and the resulting incentives, to both parties. Both

100. The social optimum criterion utilized in this Article does not tell us how the net benefits should be allocated between the parties.

victims and tortfeasors face some partial incentives to contain their respective activity levels. The aggregate reduction of activity levels for both victim and tortfeasor necessarily depends on the parties' cost and benefit functions. Further research should verify whether a rule of comparative causation under negligence could induce a greater overall reduction of "inefficient" activity levels, compared to traditional liability rules. Another important factor to consider in evaluating the relative effectiveness of alternative liability rules is likely found in the possible returns to scale and the synergies and complementarities of activity level reduction by the two parties. Once again it is important to bear in mind that, unlike other tort rules, comparative causation spreads the incentives for activity control between both parties. The desirability, or lack thereof, of spreading such incentives depends on the relationship between the parties' efforts.

IV. APPLYING COMPARATIVE CAUSATION

The actual tort cases that have utilized the criterion of comparative causation reveal that there is very little agreement among courts—and even judges within the same court—on how comparative causation should be implemented. In *Howard v. Allstate Insurance Co.*, the majority opinion compared the causal contributions of both parties.[101] The dissent, however, stated that causation is "absolute" and "incapable of being divided into comparative degrees."[102] While most courts agree that comparative causation is a more "precise" term than comparative fault, this is where the agreement ends.[103] In a Ninth Circuit case, the court even stated that "perhaps the term 'comparative causation' is a conceptually more precise term than 'comparative fault.'"[104] The court further stressed the importance of comparative causation for an equitable apportionment of the loss, and noted a sim-

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101. 520 So. 2d 715, 719 (La. 1988).

102. *Id.* at 720 (Dennis, J., concurring in part and dissenting in part).

103. Likewise, some scholars suggest that from a juror's standpoint, it would be much simpler to use his intuitive and cognitive abilities to decide issues of relative fault than to try to instruct him in the use of defense doctrines such as contributory or comparative negligence, or assumption of risk. Matthew J. Moore, *Missouri, The State of Confusion for Comparative Fault in Strict Liability Contexts*, 64 U.M.K.C. L. REV. 759, 784-85 (1996).

104. Pan-Alaska Fisheries, Inc. v. Marine Constr. & Design Co., 565 F.2d 1129, 1139 (9th Cir. 1977) (citation omitted); *see also* Murray v. Fairbanks Morse, 610 F.2d 149, 159 (3d Cir. 1979) ("We agree with the Ninth Circuit when it noted that comparative causation is a conceptually more precise term than comparative fault since fault alone without causation does not subject one to liability." (citation omitted) (internal quotation marks omitted)); Chotin Transp., Inc. v. United States, 819 F.2d 1342, 1353 n.1 (6th Cir. 1987) (quoting *Pan-Alaska*); Neely v. Club Med Mgmt. Servs., Inc., 63 F.3d 166, 199 n.37 (3d Cir. 1995) (quoting *Chotin Transp.*).

ilarity of purpose between the rules of comparative negligence and those of comparative causation, in that they both seek "to achieve an equitable method of allocating the responsibility for an injury or loss."[105] Commentators, too, have stressed the usefulness of this approach, and argued that a causal approach for allocating liability is a viable alternative to traditional methods.[106]

In spite of the consensus on the relevance of this criterion, the implementation of a rule of comparative causation still lacks a solid framework for assessing relative causation. Scholars and courts have propounded a wide array of comparative causation approaches, which can be tentatively grouped under two general headings:

(a) Pure causal approaches, based solely on the evaluation of observable proxies of causation such as activity levels or statistical dangerousness of the activity.

(b) Mixed normative approaches where the estimated causal coefficients are "weighted" in consideration of extra-causal notions and value judgments.

We shall briefly examine these two approaches in turn.

A. Pure Causal Approaches

In the first group of applications, there is an attempt to allocate liability on the sole basis of the causal contribution of the parties' activities to the loss. Since causation cannot be directly observed, proxies (such as activity levels, statistical evaluation of dangerousness, and "causal potency" of the activity) are utilized. The advantages of utilizing the pure causal approach are due to the fact that the criterion avoids contaminating the causal test with extra-causal criteria, such as fault.[107] William Grimley advocates such a pure application of the comparative causation standard, observing that comparative causation should not grade conduct by declaring that one party's conduct is "more negligent" than another's and consequently assessing greater causal contribution to the former than the latter.[108] Under a comparative causation test, the focus should be on the consequences the con-

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105. *Pan-Alaska*, 565 F.2d at 1139.

106. *See* Strassfeld, *supra* note 38, at 949 (observing that if we banish all talk of relative causal importance we deny ourselves the possibility of making many causal comparisons).

107. *See* Grimley, *supra* note 37, at 515 (observing that allocation of fault is influenced by subjective considerations that vary with the individual and result in inconsistent and unpredictable outcomes).

108. *Id.* at 514.

duct produces, as assessed through an objective evaluation of the causal connection, independent of other value judgments.[109]

A comparative causation rule would generally consider the causal potency of different actions or potential sources of the harm with knowledge of how events unfolded. The comparative evaluation of a causal link is, in this respect, not qualitatively more complex than the comparative evaluation of negligence.[110] Absent information about actual causation, the application of comparative causation rules in such a purely causal framework often rests on probabilistic information alone (e.g., the likely incidence of a given course of conduct on the probability of an accident).[111]

In Part III of this Article, we studied the effects of a comparative causation criterion of liability on the incentives of the parties. For the purpose of our analysis, we considered the simplest concept of causal incidence: one where the causal contribution of the parties' actions is evaluated on the basis of the parties' activity level (i.e., extent to which their risk-creating activity is carried out). This simple formulation assumes that there is a positive and linear correlation between the activity level and the resulting aggregate level of risk created by an activity. For many practical purposes, the apportionment of liability according

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109. *Id.*

110. Our study concentrates on the incentive effects of the comparative causation rule, assuming the practical viability of such an approach. Scholars have considered the problem and formulated practical frameworks for the comparative ascertainment of causation. For example, RAYMOND MARTIN, THE PAST WITHIN US: AN EMPIRICAL APPROACH TO PHILOSOPHY OF HISTORY 78 (1989), ascertains comparative causation by considering the following elements at the time of the event:

> [An event] *A* was a more important cause of *P* relative to $\emptyset$ than was *B* if:
>
> (1) *A* and *B* were each a cause of *P* relative to $\emptyset$, and
>
> (2) either *A* was necessary for *P* or *B* was not necessary for *P*, and
>
> (3) had *B* not occurred, something would have occurred which more closely approximates *P* than had *A* not occurred.

Id. In this study we will not dwell on the intricacies of the alternative approaches. For further analysis, see JUDEA PEARL, CAUSALITY: MODELS, REASONING, AND INFERENCE (2000).

111. For an extensive study, showing the various approaches for the identification of causal contributions to an event, see PEARL, *supra* note 110, ch. 3. Strassfeld notes, however, that this approach needs evidence such as scientific law, and statistical, historical, and psychological generalizations that will be necessary for Martin's analysis to carry through. Strassfeld, *supra* note 38, at 936. In other words, the comparative causation analysis requires evidence regarding either the divisibility of the harm suffered, or the availability of substitutes for one or more of the causes. Where the causes are apparent and the harm is cumulative, it is easy to apportion liability on the amount of pollution, or another factor to which each cause contributed. Strassfeld finds that this approach makes it a coherent and practical analysis, allowing the court to consider the causes of each impact independently, facilitating a more workable comparison. *Id.* at 944. Finally, it is intuitive that one cause's importance is related to the contribution or the impact it has had. *Id.*

to such a functional relationship bears similarities with the market share liability utilized in recent case law.[112]

More complex formulations could be adopted (e.g., one where the activity level is weighted according to the intrinsic causal potency of the activity or where risk increases nonlinearly with activity levels, etc.). Our simple formulation, however, is fairly transparent, and can easily be utilized to study the more complex variations (e.g., multiplying the activity levels by a coefficient representing the causal potency or dangerousness of the activity, or adding exponents to capture possible nonlinearities).

B. Mixed Normative Approaches

The mixed normative approach applies the comparative causation rule in conjunction with extra-causal criteria of imputability. This often amounts to a causal "weighing" of different sources of the harm. There are various strands of mixed formulation, accounting for the various factors that contribute to the causation of an accident, including level of negligence of the parties, value judgments on the parties' foresight and subjective information, and other relevant elements of the tortious action.

These mixed approaches are advocated on the basis of the fact that in the real world, the causal contribution to an accident is affected by various factors, including the level of care and activity level of the parties and other random variables.[113] In this context, some authors suggest that the mixed approach is unavoidable in practice, since we cannot make a case on purely causal grounds for assigning greater causal weight to occasioning causes, or to later-in-time causes that actualize the risk inherently created by the earlier events.[114] According to this view, the comparison between concurring (or sequential) causes must necessarily "rest on normative extra-causal notions of

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112. The imposition of liability according to such "market share" basis is not uncommon. This often happens when a victim cannot identify the specific tortfeasor, but can nevertheless identify the class of product that occasioned the injury. *See, e.g.*, Sindell v. Abbott Labs., 607 P.2d 924 (Cal. 1980) (holding that manufacturers of the drug DES should be held liable for a portion of the judgment equivalent to each manufacturer's relative sales of the drug); Hymowitz v. Eli Lilly & Co., 539 N.E.2d 1069 (N.Y. 1989) (adopting the market share theory for determining liability and apportioning damages in DES drug cases where the manufacturer of the drug is impossible to identify). In the assessment of liability in such cases, the defendants are held liable in proportion to their share of market sales. *Id.* at 1076. This bears a close analogy to our hypothetical rule where the harm is allocated between two parties on the basis of their respective shares of activity level.

113. Parisi & Fon, *supra* note 23, at 351.

114. Strassfeld, *supra* note 38, at 931.

causal importance."[115] As we have seen in the analysis above, courts have adopted a mixed normative criterion of comparative causation, mostly as a pragmatic and equitable tool, when they would otherwise have been barred from utilizing extra-causal factors in the assessment of liability (e.g., when apportioning liability under a strict liability rule, etc.).

Some commentators endorse such mixed use, suggesting that the mixed normative approach yields an imperfect but workable test that allows us to apportion liability and state that one cause was more important than another.[116] Some courts and scholars take an expressly normative approach by "evaluat[ing] causes and determin[ing] their importance [with] extracausal criteria" (i.e., "value judgments about merits and demerits of the actors, their conduct," etc.).[117] While not an adherent of this approach, Calabresi suggests that the use of causal criteria in both fault-based and strict liability regimes may be a valuable instrument for promoting economic efficiency.[118]

Needless to say, such a complex formulation of the rule would require courts and juries to undertake an assessment of multiple variables with added administrative costs that may not be fully justified by equitable considerations, or by the improved performance of the rule on efficiency grounds. Furthermore, real-life applications of the comparative causation rule show that, most frequently, comparative causation is invoked because negligence rules are impracticable or because neither party was found negligent in the case at bar. Giving consideration to such extra-causal elements in the analysis of comparative causation would reintroduce, through the back door, the elements that were excluded or found immaterial in the first place, defeating one of the main functions of the alternative criterion of liability.

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115. *Id.*

116. *E.g.*, *id.* at 951.

117. *Id.* at 945-46.

118. Guido Calabresi, *Concerning Cause and the Law of Torts: An Essay for Harry Kalven, Jr.*, 43 U. CHI. L. REV. 69, 82-84, 108 (1975) (observing that there is an important relationship between the causal tests (such as the traditional proximate cause requirement) and the efficiency criterion of the cheapest cost avoider (i.e., the person who has the best knowledge of the risks and the ways to avoid them and thus can take the least costly steps to avoid the loss)). Calabresi further argues that the cause-in-fact requirement serves the economic efficiency goal because it "is simply a useful way of toting up some of the costs the cheapest cost avoider should face in deciding whether avoidance is worthwhile." *Id.* at 85.

V. CONCLUSION: THE DILEMMA OF CAUSAL APPORTIONMENT OF THE LOSS

All bilateral precaution rules that we have encountered struggle with a common dilemma. An increase in care level (or a reduction of activity level) for one party makes an accident less likely to occur. However, each party's precautions also make the accident less likely to occur for the other party. There is no feasible and cost-effective mechanism in tort law to induce victims and tortfeasors to internalize the benefits and costs of their behavior in all dimensions.

In spite of this common ontological problem, in this Article we have shown an important qualitative difference between the rules that apportion liability on the basis of negligence and those that apportion liability on the basis of activity levels. Negligence-based rules can induce optimal choices of care for both parties because of the existence of a point of discontinuity in the liability function (which usually coincides with the socially optimal level of care for both parties). When the focus shifts to activity levels, there is no discontinuity, since the identification of socially optimal activity levels requires information on the private value of the activity for each party: a quite formidable finding for a third-party decisionmaker. This explains the benefit of the comparative causation approach, which combines the advantages of the care-driven discontinuities while allowing a loss-sharing result in equilibrium.

This further explains the historical emergence of comparative causation rules, applied in conjunction with negligence and comparative negligence standards. Such mixed application of the rule permits loss sharing in equilibrium, without undermining the underlying incentives for optimal care. The comparative causation criterion avoids the need to identify a critical value of care or activity level, as it imposes no discontinuity in the liability faced by the parties. This induces both parties to internalize a positive share of the social costs and benefits of their care and activity level in equilibrium.

When combined with negligence standards, comparative causation incentives induce the parties to adopt efficient care levels and close-to-efficient activity levels, without the need for a third-party decisionmaker to investigate unobservable costs and benefits. This rule, while an improvement to known liability rules with respect to at least one of the four relevant margins, spreads the residual incentives to control activity levels for both parties. The overall performance of the rule depends on the synergies and complementarities between the parties' efforts.

These findings help us understand the historical evolution of the comparative causation rule and the peculiar scope of application of the rule in historical and contemporary legal systems. Different, but converging, rationales seem to motivate the early applications of the rule. Some of the applications of the comparative causation rule appear to be driven by loss-sharing considerations. Whenever it is desirable to spread the loss between the parties, such that the injurer and the victim could truly expect to share the loss, comparative causation may be a better legal instrument than comparative or contributory negligence. Under comparative or contributory negligence, there is only the threat of sharing damages between the parties. In equilibrium, however, sharing of loss never happens. Thus, comparative causation is more appealing when parties are highly risk-averse. Other applications are driven by practical necessity or when the all-or-nothing outcomes of a case are not politically or diplomatically viable, as in the case of international responsibility of sovereign states. In other cases, practical considerations are driven by the need to maintain efficient incentives although fault-driven liability is not viable, as in the case of the responsibility of incapable individuals. In all such cases, although a social optimum cannot be obtained, the comparative causation rule allows the imposition of liability, inducing an equilibrium that approximates in several dimensions the ideal, but unobtainable, social optimum.